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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,962	11/13/2003	Jong-Kwon Kim	5000-1-463	9427
33942	7590	03/21/2007		
CHA & REITER, LLC 210 ROUTE 4 EAST STE 103 PARAMUS, NJ 07652			EXAMINER LEUNG, CHRISTINA Y	
			ART UNIT	PAPER NUMBER
			2613	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/712,962

Applicant(s)

KIM ET AL.

Examiner

Christina Y. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 3-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 10 is objected to because of the following informalities:

The word “eight” in line 12 of the claim should be changed to “eighth” for grammatical reasons. Also, based on the previous version of the claim as well as claim 9, Examiner notes that the word “sixth” in the last line of the claim may be changed to “eighth” instead.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites “the forward optical signals is...” (plural) in line 2 of the claim. Similarly, claim 12 recites “the backward optical signals is...” (plural) in line 2 of the claim. Claims 11 and 12 are indefinite because it is unclear how many forward optical signals and backward optical signals are recited. Examiner respectfully notes that claim 1, on which the claims depend, previously recites “the forward optical signal” and “the backward optical signal” (singular). Examiner also notes that claims 11 and 12 recite the word “is” after plural “signals” recited in the claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fatehi et al. (US 6,067,389 A) in view of Cadeddu et al. (US 5,647,035 A).

Regarding claims 1, 2, and 11-13, Fatehi et al. disclose an optical cross-connect device for communication between first and second optical networks communicating with each other using first and second optical signals each comprising a plurality of channels (Figure 1), the optical cross-connect device comprising:

a first circulating part (router portion 150, including circulator 101 and circulator 102) having first through fourth ports configured to output an optical signal which is input to a higher-order port thereof, from a lower-order port thereof arranged adjacent to the higher-order port, the first circulating part being connected at the first and third ports thereof to a first optical network (a port of circulator 101 and a port of circulator 102 are connected to a first network via fibers 106 and 107 respectively);

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a second circulating part (router portion 151, including circulator 103 and circulator 104) having first through fourth ports configured to output an optical signal, which is input to a higher-order port thereof, from a lower-order port thereof arranged adjacent to the higher-order port, the second circulating part being connected at the first and third ports thereof to a second optical network (a port of circulator 101 and a port of circulator 102 are connected to a second network via fibers 108 and 109 respectively) while being connected at the second and fourth ports thereof to the second and fourth ports of the first circulating part, respectively (Figure 1 shows how router portions 150 and 151 are connected by “second” and “fourth” ports of each router portion; column 3, lines 3-67; column 4, lines 1-19);

a first reflecting part connected to respective second ports of the first and second circulating parts (such as fiber gratings 105A connected between circulators 101 and 103 of router portions 150 and 151), being configured to input the first optical signal, being configured to reflect at least one channel of the first optical signal, and being configured to allow at least one channel that is not reflected to pass therethrough (column 4, lines 20-67; column 5, lines 1-21); and

a second reflecting part connected to respective fourth ports of the first and second circulating parts (such as fiber gratings 105B connected between circulators 102 and 104 of router portions 150 and 151), and being configured to input the second optical signal, being configured to reflect at least one channel of the second optical signal and being configured to allow at least one channel that is not reflected to pass therethrough (column 4, lines 20-67; column 5, lines 1-21).

Regarding claim 2 in particular, Fatehi et al. disclose that each of the first and second reflecting parts comprises a plurality of fiber Bragg gratings (FBG), each of which being adapted to allow an optical signal input thereto to pass through or reflect only a predetermined channel of the optical signal in accordance with an ON or OFF state thereof (column 4, lines 20-67; column 5, lines 1-21).

Regarding claim 11 in particular, as well as the claim may be understood with respect to 35 U.S.C. 112 discussed above, Fatehi et al. disclose that the optical cross-connect device is configured such that the first optical signal is input to the first reflecting part 105A only once (column 4, lines 20-67; column 5, lines 1-21).

Regarding claim 12 in particular, as well as the claim may be understood with respect to 35 U.S.C. 112 discussed above, Fatehi et al. disclose that the optical cross-connect device is configured such that the second optical signal is input to the second reflecting part 105B only once.

Regarding claims 1, 2, and 11-13, Examiner respectfully notes that Fatehi et al. disclose almost all of the elements and connections between the elements recited in claim 1 but only do not explicitly disclose that the first and second signals are "forward" and "backward" signals of optical networks. Instead, Fatehi et al. illustrate two left-side inputs and two right-side outputs of their system in Figure 1 and show the first and second optical signals that are input to the first and second reflecting parts as both moving in a same direction (i.e., left to right) in the context of Figure 1.

However, it is well understood in the art that the different signals that are input and output from optical cross-connect elements such as disclosed by Fatehi et al. may travel in

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various directions, including opposite directions, in the context of an overall network. Cadeddu et al., for example, teach system that is related to the one disclosed by Fatehi et al., including transmitting optical signals (Figure 6). Cadeddu et al. further teach connecting 2x2 switching elements to switch between “forward” and “backward” signals as desired in the context of an overall network architecture.

Specifically, Cadeddu et al. teach in Figure 6 a 2x2 switch 11A which, like the system illustrated in Figure 1 of Fatehi et al., is illustrated as having two left-side input ports and two right-side output ports. Cadeddu et al. further teach that the 2x2 switch 11A switches a “forward” (left to right) signal from fiber 3A and a “backward” (right to left) signal from fiber 3B. In other words, Cadeddu et al. suggest that in the context of an overall network, signals traveling in “forward” and “backward” directions may be switched through 2x2 type switching elements.

Regarding claims 1, 2, and 11-13, it would have been obvious to a person of ordinary skill in the art specify “forward” and “backward” signals as suggested by Cadeddu et al. in the system disclosed by Fatehi et al. in order to use the cross-connect device disclosed by Fatehi et al. to switch signals as desired traveling in opposite directions on transmission lines in the context of the overall communications system.

Allowable Subject Matter

7. Claims 3-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Examiner respectfully notes that claim 10 also has been objected to for informalities as discussed above.

8. Reasons for the indication of allowable subject matter may be found in the previous Office action.

Response to Arguments

9. Applicant's arguments filed 18 December 2006 with respect to claims 1 and 2 have been considered but are moot in view of the new ground(s) of rejection.

10. Examiner respectfully disagrees with Applicant's assertion on page 10 of their response that the currently amended claims "do not necessitate a new search." Examiner notes that claim 1 has been materially amended to recite "a first reflecting part... being configured to input *the* forward optical signal" and "a second reflecting part...being configured to input *the* backward optical signal" (emphasis added), wherein "the forward optical signal" and "the backward optical signal" that are now positively recited in the claim refer to the "forward and backward optical signals" recited earlier in the preamble.

Examiner respectfully notes that Fatehi et al. disclose almost all of the elements and connections between the elements recited in claim 1 but only do not explicitly disclose that the first and second signals are "forward" and "backward" signals of optical networks. As discussed in greater detail above, Cadeddu et al. is mainly relied upon to provide a teaching that in the context of an overall network, signals traveling in "forward" and "backward" directions may be switched through 2x2 type switching elements. Examiner respectfully submits that it would have been obvious to a person of ordinary skill in the art specify "forward" and "backward" signals as suggested by Cadeddu et al. in the system disclosed by Fatehi et al. in order to use the cross-connect device disclosed by Fatehi et al. to switch signals as desired traveling in opposite directions on transmission lines in the context of the overall communications system.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Y Leung
CHRISTINA LEUNG
PRIMARY EXAMINER